

This listing of the claims will replace all prior versions and listings of the claims in the application:

Listing of the Claims:

1. (Original) A method of utilizing a divided storage vessel comprising the steps of:

transferring a first liquid densified gas based treating solution from a first liquid chamber in a divided storage vessel having a plurality of liquid chambers that share a common vapor space to a processing vessel;

returning the first treating solution from the processing vessel to the divided storage vessel;

transferring a second liquid densified gas based treating solution having a composition different from the first treating solution from a second liquid chamber in the divided storage vessel to a processing vessel; and

returning the second treating solution from the processing vessel to the divided storage vessel.

2. (Original) The method according to Claim 1, further comprising the step of storing a plurality of densified gas based treating solutions present as two-phase systems in a divided storage vessel having a plurality of liquid chambers that share a common vapor space.

3. (Original) The method according to Claim 1, wherein the step of transferring a first liquid densified gas based treating solution from a first liquid chamber in a divided storage vessel to a processing vessel comprises heating and/or pressurizing the first liquid densified gas based treating solution to provide a first supercritical fluid based treating solution; and wherein the step of returning the first treating solution from the processing vessel to the divided storage vessel comprises depressurizing and/or cooling the first supercritical fluid based treating solution to provide a first liquid densified gas based treating solution.

4. (Original) The method according to Claim 1, further comprising the steps of:

pressurizing and/or heating the first liquid densified gas based treating solution in the processing vessel to provide a first supercritical fluid based treating solution;
and

depressurizing and/or cooling the first supercritical fluid based treating solution in the processing vessel to provide a first liquid densified gas based treating solution.

5. (Original) The method according to Claim 1, further comprising the step of pressurizing and/or heating the first liquid densified gas based treating solution in the processing vessel to provide a first supercritical fluid based treating solution; and wherein the step of returning the first treating solution from the processing vessel to the divided storage vessel comprises depressurizing and/or cooling the first supercritical fluid based treating solution to provide a first liquid densified gas based treating solution.

6. (Original) The method according to Claim 1, wherein the step of transferring a first liquid densified gas based treating solution from a first liquid chamber in a divided storage vessel to a processing vessel comprises heating and/or pressurizing the first liquid densified gas based treating solution to provide a first supercritical fluid based treating solution, said method further comprising the step of depressurizing and/or cooling the first supercritical fluid based treating solution in the processing vessel to provide a first liquid densified gas based treating solution.

7. (Original) The method according to Claim 1, wherein the first densified gas based treating solution is a first carbon dioxide based treating solution, and the second densified gas based treating solution is a second carbon dioxide based treating solution.

8. (Original) The method according to Claim 7, further comprising the steps of:

contacting an article in the processing vessel with the first treating solution;
and

contacting the article in the processing vessel with the second treating solution.

9. (Original) The method according to Claim 8, wherein the article is a fiber optic device or component.

10. (Original) The method according to Claim 9, wherein the step of contacting the article in the processing vessel with the first treating solution comprises cleaning the fiber optic device or component using the first treating solution.

11. (Original) The method according to Claim 10, wherein the step of contacting the article in the processing vessel with the second treating solution comprises coating the fiber optic device or component with a coating using the second treating solution.

12. (Original) The method according to Claim 11, wherein the coating is a polymer coating.

13. (Original) The method according to Claim 9, wherein the step of contacting the article in the processing vessel with the first treating solution comprises coating the fiber optic device or component with a first coating using the first treating solution; and wherein the step of contacting an article in the processing vessel with the second treating solution comprises coating the fiber optic device or component with a second coating using the second treating solution, said second coating having a different composition from said first coating.

14. (Original) The method according to Claim 8, wherein at least one of the first or second treating solutions is an impregnating solution, and wherein the step of contacting the article with the impregnating solution comprises the step of impregnating the article with an impregnating agent.

15. (Original) The method according to Claim 14, wherein the article is a foodstuff.

16. (Original) The method according to Claim 14, wherein the impregnating agent comprises a pharmaceutical compound.

17. (Original) The method according to Claim 8, wherein at least one of the first or the second treating solutions is an extracting solution, and wherein the step of contacting the article with the extracting solution comprises the step of extracting a substance from a substrate using the extracting solution.

18. (Original) The method according to Claim 17, wherein the article is selected from the group consisting of plants and seeds.

19. (Original) The method according to Claim 18, wherein the substance extracted from the article is selected from the group consisting of flavors, vitamins, natural product drugs, and drug precursors.

20. (Original) The method according to Claim 8, wherein at least one of the first or the second treating solutions is a developing solution, and wherein the step of contacting the article with the developing solution comprises the step of developing a resist on a semiconductor substrate using the developing solution.

21. (Original) The method according to Claim 7, wherein the first treating solution is a first reacting solution comprising a first reactant, wherein the second treating solution is a second reacting solution comprising a second reactant, and the method further comprises the step of synthesizing a chemical compound by combining the first reacting solution with the second reacting solution.

22. (Original) The method according to Claim 7, further comprising the step of combining the first treating solution with the second treating solution in the processing vessel, wherein the first treating solution further comprises one or more monomers, and wherein the second treating solution further comprises an initiator, such that said combining step polymerizes the one or more monomers.

23. (Original) The method according to Claim 22, wherein the step of transferring the second treating solution from the second liquid chamber to the processing vessel precedes or is concurrent with the step of transferring the first treating solution from the first liquid chamber to the processing vessel, and wherein the step of transferring the first treating solution from the first liquid chamber to the processing vessel comprises the step of metering the first treating solution into the processing vessel to control one or more properties of a polymer formed in the polymerizing step.

24. (Original) The method according to Claim 7, further comprising the step of combining the first treating solution comprising a chemical compound with a third treating solution substantially devoid of liquid carbon dioxide to purify the chemical compound.

25. (Original) The method according to Claim 7, wherein the processing system is a batch processing system.

26. (Original) The method according to Claim 7, wherein the processing system is a semi-batch processing system.

27. (Original) The method according to Claim 7, wherein the processing system is a continuous processing system.

28. (Original) The method according to Claim 7, wherein the first treating solution comprises greater than 75% by volume liquid carbon dioxide, and wherein the second treating solution comprises greater than 75% by volume liquid carbon dioxide.

29-74. (Cancelled)

75. (Original) A method of utilizing a divided storage vessel comprising the steps of:

transferring a first treating adjunct from a first chamber in a divided storage vessel having a plurality of chambers that share a common vapor space to a processing vessel;

transferring a densified fluid comprising a liquid densified gas or a supercritical fluid into the processing vessel;

removing the first treating adjunct from the processing vessel;

transferring a second treating adjunct having a composition different from the first treating adjunct from a second chamber in the divided storage vessel to the processing vessel; and

removing the second treating adjunct from the processing vessel.

76. (Original) The method according to Claim 75, wherein the step of removing the first treating adjunct from the processing vessel comprises removing the first treating adjunct and the densified fluid from the processing vessel.

77. (Original) The method according to Claim 76, further comprising the step of transferring a densified fluid into the processing vessel after the step of transferring a second treating adjunct from the second chamber in the divided storage vessel to the processing vessel.

78. (Original) The method according to Claim 75, wherein the densified fluid is liquid carbon dioxide.

79. (Original) The method according to Claim 75, wherein the densified fluid is supercritical carbon dioxide.

80. (Original) The method according to Claim 75, wherein the steps of transferring a first treating adjunct from a first chamber in a divided storage vessel to a processing vessel, and transferring a densified fluid into the processing vessel occur concurrently.

81. (Original) The method according to Claim 80, wherein the densified fluid is a liquid densified gas, wherein the first treating adjunct and the densified fluid are components of a first treating solution in the first chamber of the divided storage vessel, and wherein the steps of transferring a first treating adjunct from a first chamber in a divided storage vessel to a processing vessel, and transferring a densified fluid into the processing vessel comprise the step of transferring the first treating solution from the first chamber of the divided storage vessel to the processing vessel.

82. (Original) The method according to Claim 75, wherein the step of transferring a first treating adjunct from a first chamber in a divided storage vessel to a processing vessel occurs after the step of transferring a densified fluid into the processing vessel.

83. (Original) The method according to Claim 75, wherein the step of transferring a first treating adjunct from a first chamber in the divided storage vessel to a processing vessel comprises:

pressurizing the divided storage vessel to a pressure higher than the pressure of the processing vessel; and

establishing fluid communication between the first chamber in the divided storage vessel and the processing vessel.

84. (Original) The method according to Claim 83, wherein the step of pressurizing the divided storage vessel to a pressure higher than the pressure of the processing vessel comprises charging a non-carbon dioxide gas into the divided storage vessel.

85. (Original) The method according to Claim 83, wherein the step of pressurizing the divided storage vessel to a pressure higher than the pressure of the processing vessel comprises charging carbon dioxide into the divided storage vessel.

86. (Original) The method according to Claim 75, wherein at least one of the first and the second treating adjuncts is an etching adjunct, and a mixture formed by the etching adjunct and the densified fluid is capable of etching a semiconductor substrate.

87. (Original) The method according to Claim 75, wherein at least one of the first and the second treating adjuncts is a developing adjunct, where a mixture formed by the developing adjunct and the densified fluid is capable of developing a photoresist coating on a semiconductor substrate.

88. (Original) The method according to Claim 75, wherein at least one of the first and the second treating adjuncts is a chemical mechanical planarization (CMP) slurry adjunct, where a mixture formed by the CMP slurry adjunct and the densified

fluid is capable of planarizing the surface of a semiconductor substrate.

89. (Original) The method according to Claim 88, wherein the first treating adjunct is a CMP slurry, and wherein the second treating adjunct is a CMP cleaning adjunct, where a mixture formed by the CMP cleaning adjunct and the densified fluid is capable of removing post-CMP residues from a semiconductor substrate.

90. (Original) The method according to Claim 75, wherein at least one of the first and the second treating adjuncts is a photoresist removal adjunct, where a mixture formed by the photoresist removal adjunct and the densified fluid is capable of removing a photoresist coating from a semiconductor substrate.

91. (Original) A method of utilizing a divided storage vessel comprising the steps of:

- charging a first densified fluid comprising a liquid densified gas or a supercritical fluid into a processing vessel;
- removing the first densified fluid from the processing vessel;
- charging the first densified fluid into a first liquid chamber in a divided storage vessel having a plurality of liquid chambers that share a common vapor space;
- charging a second densified fluid comprising a liquid densified gas or a supercritical fluid into the processing vessel;
- removing the second densified fluid from the processing vessel; and
- charging the second densified fluid into a second liquid chamber in the divided storage vessel.

92. (Original) The method according to Claim 91, wherein when the first treating solution is a supercritical fluid based treating solution, the method further comprises changing the state of the first treating solution from supercritical fluid to densified gas prior to charging the first treating solution into the first liquid chamber of the divided storage vessel.

93. (Original) The method according to Claim 91, wherein when the second treating solution is a supercritical fluid based treating solution, the method further comprises changing the state of the second treating solution from supercritical fluid to densified gas prior charging the second treating solution into the second liquid chamber of the divided storage vessel

94. (Original) The method according to Claim 91, wherein the first densified fluid comprises carbon dioxide, and the second densified fluid comprises carbon dioxide.

95. (Original) The method according to Claim 91, further comprising the step of purifying at least one of the first densified fluid and the second densified fluid to provide substantially pure gas or densified fluid after removing the first and/or the second densified fluids to the divided storage vessel.

96. (Original) The method according to Claim 95, wherein the purifying step comprises the steps of:

transferring at least one of the first densified fluid and the second densified fluid from the divided storage vessel to a purification system; and

purifying at least one of the first densified fluid and the second densified fluid to provide substantially pure gas or densified fluid.

97. (Original) The method according to Claim 91, wherein at least one of the first and the second densified fluids is an etching solution capable of etching a semiconductor substrate, or wherein at least one of the first and the second densified fluids is mixed with an etching adjunct to provide an etching solution capable of etching a semiconductor substrate.

98. (Original) The method according to Claim 91, wherein at least one of the

first and the second densified fluids is a developing solution capable of developing a photoresist coating on a semiconductor substrate, or wherein at least one of the first and the second densified fluids is mixed with a developing adjunct to provide a developing solution capable of developing a photoresist coating on a semiconductor substrate.

99. (Original) The method according to Claim 91, wherein at least one of the first and the second densified fluids is a chemical mechanical planarization (CMP) slurry capable of planarizing the surface of a semiconductor substrate, or wherein at least one of the first and the second densified fluids is mixed with a CMP slurry adjunct to provide a CMP slurry capable of planarizing the surface of a semiconductor substrate.

100. (Original) The method according to Claim 99, wherein the first densified fluid is a CMP slurry, and wherein the second densified fluid is a CMP cleaning solution capable of removing post-CMP residues from a semiconductor substrate.

101. (Original) The method according to Claim 91, wherein at least one of the first and the second densified fluids is a photoresist removal solution capable of removing a photoresist coating from a semiconductor substrate, or wherein at least one of the first and the second densified fluids is mixed with a photoresist removal adjunct to provide a photoresist removal solution capable of removing a photoresist coating from a semiconductor substrate.